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OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

MEMORANDUM

SUBJECT: Technical Interpretation and Guidance Regarding the Combination of Cathodic Protection and Internal Lining

FROM: Lisa Lund, Acting Director
Office of Underground Storage Tanks

TO: EPA UST/LUST Regional Program Managers
State UST Program Managers

In response to questions from Regions 1, 4 and 7, the Office of Underground Storage Tanks (OUST) is providing a technical interpretation and guidance regarding the upgrade option listed in 40 CFR §280.21(b)(3), internal lining combined with cathodic protection for steel underground storage tanks (USTs). OUST believes that this regulation intended that owners/operators use this upgrade option by adding cathodic protection and internal lining at the same time. However, we understand that this regulation can be interpreted to mean that cathodic protection and internal lining may be added at different times. Therefore, the following three scenarios can occur:

1) the application of an internal lining and cathodic protection at the same time.

2) the addition of cathodic protection to an UST with an internal lining.

3) the application of an internal lining to an UST with cathodic protection.

In all three scenarios, the regulations are clear on the following points. First, the codes of practice for internally lining USTs listed in the note following § 280.21 (b) require that an internal inspection of the tank be conducted prior to

application of the lining. [1] Second, an interior lining must be installed in accordance with the requirements of § 280.33 (See § 280.21 (b)(3)(i)). Finally, all cathodic protection systems must meet the requirements of § 280.20 (a)(2)(ii), (iii), and (iv), which includes the requirement that these systems be operated and maintained pursuant to § 280.31 (See § 280.21 (b)(3)(ii)). This last point means that cathodic protection systems must be subjected to periodic monitoring to ensure they are working properly and protecting the UST even though the tank has been properly lined.

The following discussion addresses each scenario in greater detail.

Scenario 1:

If an owner/operator chooses to upgrade a steel UST by the addition of cathodic protection and internal lining **at the same time**, then the integrity of the tank must be assessed by internal inspection and found to be structurally sound, followed by proper application of the internal lining and the addition of cathodic protection. The codes of practice for internally lining USTs listed in the note following § 280.21 (b) require that an internal inspection of the tank be conducted prior to application of the lining. In addition, the interior lining must be installed in accordance with the requirements of § 280.33. According to the preamble to the final rule for the UST technical requirements (see 53 Fed. Reg. 37131 [Sept. 23, 1988]), EPA's intent was that if owners and operators were to use interior lining as the sole method for meeting the corrosion protection upgrade, the tank must undergo periodic internal inspections as required by § 280.21 (b)(1)(ii). When combining the two corrosion protection methods, internal lining is no longer the sole method used for meeting the corrosion protection upgrade and, therefore, periodic inspection of the lining is not required. However, the cathodic protection system must be operated and maintained pursuant to § 280.31.

Scenario 2:

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[1] The codes of practice listed in the regulations are (1) American Petroleum Institute Publication 1631, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks," and (2) National Leak Prevention Association Standard 631, "Spill Prevention, Minimum 10 Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection."

If an owner/operator adds cathodic protection to a **previously internally-lined tank**, then in order not to be required to perform periodic internal inspections of the lined tank, the following must be done. Prior to the addition of cathodic protection, the integrity of the UST must be ensured pursuant to § 280.21 (b)(2). The method of integrity assessment must ensure the integrity of the UST, not just the lining. Once installed, the cathodic protection system must be operated and maintained in accordance with § 280.31. If the above criteria are used, then internal lining is no longer considered the sole method of corrosion protection upgrade and periodic inspection of the lining is not required. If, however, cathodic protection is added to an UST whose integrity was not ensured, then periodic monitoring/inspection of both the cathodic protection system and lining is required.

Regarding the integrity assessment set forth in § 280.21 (b)(2), OUST recommends that an acceptable method of ensuring the tank's integrity is to have a corrosion expert (defined in § 280.11) determine that the UST is structurally sound and free of corrosion holes. The owner/operator should maintain a record regarding this determination for the operating life of the UST. If a cathodic protection system is added to a lined tank using the above criteria, OUST recommends that the lined tank no longer require periodic inspection of the lining. The cathodic protection system must be operated and maintained in accordance with § 280.31. This recommendation is consistent with § 280.20 (a)(4) and (b)(3), standards for new UST systems, which allow a corrosion expert to make the determination regarding corrosion protection, provided that records are kept for the life of the tank.

Scenario 3:

If an owner/operator adds an internal lining to an UST **already having cathodic protection**, then the codes of practice for internally lining USTs listed in the note following § 280.21 (b) require that an internal inspection of the tank be conducted prior to application of the lining. In addition, the interior lining must be installed in accordance with the requirements of § 280.33. Since the interior lining is not the sole method for meeting the corrosion protection upgrade, periodic inspections of the lined tank are not required. However, because of the language in § 280.21 (b)(3)(ii), the cathodic protection system must continue to be operated and maintained in accordance with § 280.31.

If you have any questions regarding this technical interpretation and guidance, please call Paul Miller of my staff at (703) 308-7242.

cc: ASTSWMO UST Task Force
OUST Management Team
OUST Desk Officers
Larry Brill, Region 1
Stanley Siegel, Region 2
Maria Vickers, Region 3
Mary Kay Lynch, Region 4
Willie Harris, Region 5
Willie Kelley, Region 6
Bill Pedicino, Region 7
Stephen Tuber, Region 8
Laura Yoshii, Region 9
Lauris Davies, Region 10
Kathy Nam, OGC
Randy Nelson, Region 7
Joan Olmstead, OECA
Shonee Clark, OUST (Compendium)
Paul Miller, OUST
Joe Lehmann, Subcon, Inc.
James Bushman, Bushman & Associates, Inc.
Michael Baach, Corrpro Companies, Inc.
Jay Lehr, Environmental Education Enterprises, Inc.
James Lary, Harco Technologies Corp.
Ray Kashmiri, ILFC, Inc.
Marcel Moreau, Marcel Moreau Associates
Mary Fitzgerald, NACE International
Shelley Nadel, NACE International
Alex Ralston, Petcon, Inc.
John Piazza II, Southern Cathodic Protection
Jack Quigley, University of Wisconsin
E. David Daugherty, University of Tennessee-Chattanooga